NAME INDEX

Achen, C. H., 100, 113, 127, 130-31, 134, 144 Agresti, A., 282, 317 Aitchison, J., 280, 317 Aitkin, M., 283, 317 Akaike, H., 364, 378 Alba, R. D., 29n, 32 Allison, P. D., 124, 142, 144, 145 Alwin, D. F., 63, 84, 86, 87, 89, 90, 91, 92, 92n, 94, 96, 97, 99, 100, 100n, 101, 102, 103, 103n, 104, 105, 112, 113, 116, 117 Amemiya, Y., 266, 276, 322, 344, 378 Anderson, D., 283, 317 Anderson, J. G., 1, 32 Anderson, T. W., 124, 125n, 144, 255, 266, 276, 322, 344, 378 Andrews, F. M., 87, 90-91, 92, 113 Andrich, D., 101n, 113 Anselin, L., 222, 223, 236n, 236-38, 237n, 240, 242, 244, 245, 246 Arabie, P., 4, 16, 32 Arminger, G., 125, 146, 250, 252, 253, 261, 264, 276 Asher, H. B., 126, 145

Bainbridge, W. S., 239, 246 Barb, K. H., 87, 114 Barker, K., 37n Bartholomew, D. J., 90, 114 Basmann, R. L., 230, 247 Baughman, J. L., 37n Beach, L. R., 42, 42n, 43, 62, 63 Belson, W. A., 41, 62 Bendig, A. W., 87, 89, 92, 114 Benesh, C., 37n Benson, P. H., 84, 114 Bentler, P. M., 99n, 104, 105, 110n, 114, 250, 252, 253, 254, 255, 258, 259, 266, 267, 271, 276, 277, 278 Berent, M. K., 105n, 116 Birkett, N. J., 90, 114 Bishop, G. F., 39, 62 Bishop, Y. M. M., 148, 177, 306, 317 Blackman, R. B., 343, 379 Blau, J. R., 238, 247 Block, J., 92, 114 Bock, R. D., 282, 301, 302, 304, 305, 306, 317 Bollen, K. A., 87, 114, 221n, 250, 276, 322, 379 Boorman, S., 2, 4, 16, 32, 35 Borgatti, S. P., 4, 4n, 13n, 17, 28n, 32, 33 Borjas, G., 188, 219 Bourdon, R. D., 92, 116 Boyd, J. P., 32, 33 Bradburn, N. M., 41, 44, 56n, 62, 65, 85n, 114 Brady, M. L., 37n Brandt, D., 120n, 146 Breault, K. D., 238, 247 Breiger, R. L., 1, 2, 4, 16, 32, 35, 147n, 171, 177 Breland, H. M., Jr., 146 Brenner, M., 40, 62 Breusch, T. S., 154, 156, 161, 177 Briggs, C. L., 40, 62

Brody, C. J., 149, 177
Brown, J., 40, 44, 45, 62
Browne, M. W., 84, 104, 114, 250, 251, 255, 256, 258, 261, 262, 265, 266, 267, 277
Brym, R. J., 2, 32
Buettner, D., 37n
Burns, J. A., 39, 63
Burt, R. S., 1, 2, 3, 6, 6n, 8n, 9, 9n, 14, 16, 17, 20, 21, 27, 28n, 32, 33

Caldeira, G. A., 20, 32 Camburn, D., 63 Cameron, C. A., 184, 188, 217n, 218 Campbell, A., 95, 96, 114, 138, 145 Campbell, R., 83n Cannell, C., 41, 65 Canter, D., 40, 45, 62 Carayon, P., 37n Carley, K., 60, 62 Carman, M., 37n Carmines, E. G., 100n, 115 Carroll, G. R., 209n, 218 Chamberlain, G., 250, 277 Champney, H., 89, 114 Chiang, C. L., 252, 277 Christiano, K. J., 239, 247 Christoffersson, A., 330, 345, 379, 380 Cicourel, A. V., 40, 62 Clive, J., 322, 323, 337, 338, 379, 381 Clogg, C. C., 148, 149, 149n, 161, 162-71, 177, 178, 279, 280, 288, 289, 291, 305, 316, 317, 318 Coleman, G. A., 27 Coleman, J. S., 32, 180, 182, 188, 188n, 218Converse, J. M., 39, 40, 63, 114 Converse, P. E., 63, 85n, 95, 114, 145 Cook, K. S., 1, 23-26, 32, 33 Cook, S. W., 89, 115 Coombs, C. H., 39, 63, 87, 115 Coombs, L. C., 39, 63 Couch, A., 121, 137, 140, 145 Cox, D. R., 149, 150, 154n, 155, 156, 160, 177, 180n, 182, 183, 186, 191, 192, 193, 209, 218, 262, 277 Cox, E. P., 86, 90, 91, 115 Cramér, H., 129, 145, 157, 160, 177

Cronbach, L. J., 91, 100n, 112, 115 Cuzzort, R. P., 226, 247

Danis, C., 85n, 114 Davidson, A. R., 41, 42, 42n, 43, 63 Davidson, J., 323, 379 Davidson, R., 149, 152-53, 166n, 166-67, 173, 177 Deane, G., 238, 247 Deaton, A. S., 149, 178 de Jong, W., 317, 320 Delacroix, J., 209n, 218 de Leeuw, J., 125n, 146, 280, 283, 289, 292, 293, 295, 296, 298, 318, 320 DeMaio, T., 40, 41, 63 Dempster, A. P., 294, 318, 323, 379 de Pijper, M., 380 Deutsch, M., 89, 115 Dielman, L., 83n Dijkstra, T., 250, 276 Dillon, W. R., 354, 379 DiMaggio, P., 9, 20, 22-23, 27, 33 Dobson, D., 125n, 145 Doreian, P., 27, 32, 222, 223, 224, 225, 226, 228, 228n, 230n, 242, 242n, 245, 246, 247 Dryman, A., 379 Du Bois, B., 39, 63 Duke, J. B., 226n, 245, 247 Duncan, B. A., 226, 247 Duncan, O. D., 39, 40, 63, 148, 149, 177, 226, 227, 247

Eaton, W. W., 346, 379
Edwards, A. L., 39, 54n, 63
Elder, G. H., Jr., 180, 218
Eliason, S. R., 158n, 163n, 177
Emerson, R. M., 24, 25, 26n, 32, 33
Emmons, C., 64
Epstein, D., 120n, 145
Erickson, B. H., 2, 27, 33
Erikson, R. S., 100, 115, 126, 145
Evan, W. M., 20, 33
Everett, M. G., 4, 4n, 13n, 17, 19, 28n, 32, 33
Everitt, B. S., 283, 318, 336, 337, 346, 347, 379

Faulkenberry, G. D., 39, 54n, 63 Faust, K., 1n, 3, 17, 33

Feldman, S., 120, 146 Ferguson, L. W., 89, 115 Ferguson, T., 252, 277 Fernandes, C., 216, 219 Fienberg, S. E., 148, 177, 302, 306, 317, 318 Fink, E., 87, 118 Finke, R., 238, 247 Finn, R. H., 92, 115 Fiske, M., 40, 64 Formann, A. K., 294, 301, 318 Foster, B. L., 29n, 34 Fowler, F. J., 47, 63 Freedman, D., 61, 63 Freeman, J., 180, 181, 208-209, 209n, 218 - 19Freeman, L. C., 1n, 8, 14, 33 Friedkin, N. E., 1, 1n, 3, 9, 27, 28, 33, 221n Fuller, W. A., 250, 262, 277

Galaskiewicz, J., 2, 20-21, 33 Garner, W. R., 86, 87, 115 Garson, A., 322, 381 Gibbs, J. P., 239, 247 Giller, E. L., 379 Gillmore, M. R., 33 Gilula, Z., 280, 289, 297, 318 Glaser, B. G., 41, 63 Glass, D. V., 148, 162, 177 Godfrey, L. G., 154n, 161, 170n, 173, 177 Goldberg, L. R., 39, 63 Goldstein, M., 354, 379 Good, I. J., 170n, 178, 289, 319 Goodman, L. A., 149, 163, 178, 280, 289, 292, 294, 296, 297, 302, 304, 305, 318, 319 Gourieroux, C., 185, 218 Graham, W. K., 86, 89, 90, 116 Grandy, J., 146 Granovetter, M., 239, 247 Green, D. P., 121, 126, 128n, 138, 138n, 140, 145 Green, P. E., 84, 115 Green, S. B., 90, 116 Greene, V. L., 100n, 115 Greene, W. H., 185, 191, 218 Greenwood, M., 190, 218

Grego, J., 149 n, 178

Griliches, Z., 180n, 219 Groat, L., 45, 62 Grover, R., 289, 319 Groves, R. M., 44, 63 Gupta, M. M., 327, 379

Haberman, S. J., 158n, 178, 280, 282, 289, 294, 296, 301, 302, 316, 318, 319 Hagenaars, J. A., 289, 316, 317, 319 Hake, H. W., 87, 115 Halaby, C., 147n Hall, B. H., 180n, 219 Hannan, M. T., 147n, 179, 180, 181, 184n, 205, 208, 208n, 209, 209n, 214n, 218-19, 220 Hansen, L. P., 250, 277 Harary, F., 7, 14, 33 Hargens, L. L., 124, 145 Hargis, P. G., 238, 247 Hartman, R. L., 9, 27, 33 Harvey, A. C., 216, 219 Hatch, L. R., 239, 246 Hauser, R. M., 142, 144 Hausman, J., 180n, 188, 219 Heckman, J., 188, 219 Heise, D. R., 84, 100, 103, 115, 120, 145 Henry, N. W., 332, 379 Heudin, H., 286, 319 Heuer, J., 283, 319 Heyns, B., 130, 145 Hinde, J., 283, 317 Hinkley, D. V., 154, 154n, 155, 156, 160, 177, 262, 277 Hippler, H., 85, 115 Hocker, W. T., 64 Hodge, R. W., 100, 118 Hofacker, C., 102n, 117 Hofstadter, D. R., 3, 33 Holden, R. T., 181, 188n, 219 Holland, P. W., 148, 177, 306, 317 Holmes, D. J., 351, 380 Holt, D., 260. 278 Horan, P. M., 238, 247 Hughes, J. B., 87, 114 Hulbert, J., 84, 116 Hummell, H., 4, 33 Hummon, N. P., 228, 228n, 247

Isham, V., 183, 186, 191, 192, 193, 218

Jabine, T. B., 41, 63, 85, 115 Jaccard, J. J., 41, 63 Jackson, D. J., 101, 113 Jacoby, J., 84, 89, 115, 116 Jagodzinski, W., 122, 127, 145 Jahoda, M., 89, 115 Jay, S. J., 1, 32 Jenkins, G. D., Jr., 90, 115 Jennrich, R. I., 262, 277 Jensen, E., 42, 64 Johnson, J. D., 9, 27, 33 Johnson, N. L., 189n, 219 Johnston, J., 229, 230, 231, 232, 247, 322, 379 Jordan, B., 40, 65 Jöreskog, K. G., 84, 100, 100n, 101, 102, 103n, 104, 105, 107n, 115-16, 118, 120, 121, 124n, 125, 128n, 145, 146, 250, 251, 252, 254, 262, 277, 322, 330, 344, 379 Jorgensen, B., 157, 178 Joseph, J. G., 41, 64 Junger, M., 308, 320

Kadushin, C., 2, 33 Kalton, G. J., 41, 65, 100, 117 Kane, E., 50n, 64 Kaplan, D., 101, 117, 252, 261, 278 Kaplan, K. J., 39, 64 Katz, E., 27, 32 Kaufmann, A., 327, 379 Kendall, P. L., 41, 64 Keniston, K., 121, 137, 140, 145 Kerkhof, A., 279n Kessler, R. C., 64 Kick, E. L., 1, 34 Kiefer, J., 379 Kiesler, S., 42, 65 King, G., 180n, 184n, 185, 187, 191, Klopfer, F. J., 39, 64 Knoke, D., 14, 33 Komorita, S. S., 86, 89, 90, 116 Kotz, S., 189n, 219 Krackhardt, D., 2, 33 Krieger, A. M., 297, 318 Krippendorff, K., 8, 34

Krohn, K. R., 2, 20–21, 33 Krosnick, J. A., 85, 86, 87, 91, 92, 94, 97, 99, 100, 104, 105n, 112, 113, 116, 126, 145 Kuhn, H. W., 338, 379 Kühnel, S. M., 122, 127, 145 Kullback, S., 329, 379

Laird, N. M., 294, 318 Land, K. C., 238, 247 Langeheine, R., 296, 301, 317, 320 Lawley, D. N., 329, 344, 379 Lazarsfeld, P. F., 332, 379 Leavitt, H. J., 2, 34 Lee, L., 217, 219 Lee, S. Y., 262, 277 Lehmann, D. R., 84, 116 Lewis, P. A. W., 182, 209, 218 Liang, K. Y., 180n, 219, 380 Lieberson, S., 239, 247 Liebler, R. A., 329, 379 Likert, R., 84, 89, 116, 117 Lindsay, B., 149 n, 178 Linn, R. L., 100, 103n, 118, 120, 121, Linton, R., 17, 34 Lipster, R., 326, 380 Lissitz, R. W., 90, 116 Lofland, J., 45, 46n, 64 Lofland, L. H., 45, 46n, 64 Lord, F. M., 89, 100, 101, 103, 116 Lorrain, F. P., 3, 3n, 5, 6, 6n, 8, 17, 34 Luce, R. D., 9, 29n, 34 Ludwig, J., 65 Luijkx, R., 289, 316, 319, 320

MacKinnon, J. G., 149, 152–53, 166–67, 168n, 172, 173, 177, 178
Madansky, A., 336, 380
Madden, J. M., 92, 116
Madden, T. M., 39, 64
Magnus, J., 256, 277
Makov, U. E., 162, 178
Malinvaud, E., 250, 277, 322, 380
Mandel, M. J., 4, 17, 35
Mangione, T., 47, 63
Manning, W., 37n
Manski, C., 250, 277

Manton, K. G., 323, 337, 341, 343, 362, 380, 381 Marini, M. M., 338, 380 Markovsky, B., 1, 14, 23-26, 34 Markus, G. B., 95, 97, 114, 116, 126, Marsden, P. V., 1n, 37n, 147n, 148, 149, 162-71, 178, 179, 221n, 231n, 245n, 249n, 279n, 289, 320 Marshall, H., 89, 114 Martin, E., 85, 118 Martin, W. T., 239, 247 Mason, R., 39, 54n, 63 Matell, M. S., 84, 89, 115, 116 Maxwell, A. E., 329, 344, 379 Maynard, D., 37n McAleer, M., 153, 169, 178 McArdle, J. J., 120n, 145 McClelland, G. H., 41, 64 McClendon, M. J., 113, 117 McCormick, E. J., 92, 117 McCullagh, P., 181, 185, 190, 195, 196, 211, 219 McCutcheon, A. L., 298, 320, 379 McKennell, A. C., 40, 64, 84, 117 McPherson, M., 179 Meeter, D. A., 125n, 145 Menzel, H., 27, 32 Meredith, W., 251, 262, 277 Merton, R. K., 17, 19, 34, 40, 64 Messick, S., 92, 117 Mierzwa, F., 83n Miller, A. H., 85, 96, 97n, 117, 118 Miller, G. A., 86, 117 Miller, W. E., 87-88, 88n, 96, 114, 117, 145 Mishler, E. G., 40, 44, 64 Mokken, R. J., 14, 29n, 34 Monfort, A., 185, 218 Montgomery, A., 222, 223, 225, 226, 227, 228, 248 Mooijaart, A., 266, 277, 280, 300, 305, 320 Moore, D. S., 277 Moran, P. A. P., 162n, 178 Morgan, D. L., 41, 64 Morgan, S. P., 42, 64 Morton-Williams, J., 40, 41, 64 Moser, C. A., 100, 117

Mostyn, B., 45, 65

Mulder, J., 380 Murphy, G., 89, 117 Muthén, B. O., 83n, 84, 101, 102n, 104, 105, 107n, 117, 249n, 250, 251, 252, 261, 278, 322, 330, 331, 380 Nadel, S. F., 17, 19, 34 Nebergall, R. E., 88, 118 Nee, V., 147n Nelder, J. A., 157, 159, 178, 181, 185, 190, 195, 196, 211, 219 Nemeth, R., 1, 34 Neudecker, H., 254, 256, 257n, 277, 278 Newey, W. K., 250, 256, 262, 278 Novick, M. R., 89, 100, 101, 116 Oakes, D., 193, 219 O'Brien, K., 64 O'Brien, R., 87, 117 Oksenberg, L., 41, 60, 65 Oldendick, R. W., 39, 62 Ollé, M., 249n Olzak, S., 179, 181, 219 O'Muircheartaigh, C. A., 44, 65 Orchard, T., 338, 380 Ord, K., 222, 223, 224, 225, 228, 229, 248 Osgood, C. E., 84, 117 Pagan, A. R., 154, 156, 161, 177 Palmquist, B., 126, 128n, 138n, 145 Patterson, T. E., 119, 137, 138, 141, 144, 146 Pattison, P. E., 4, 32, 34 Patton, T., 1, 14, 34 Peabody, D., 84, 117 Pearson, M., 279n Perry, A. D., 29n, 34 Pesaran, M. H., 149, 150, 151-52, 153n, 170n, 173, 177, 178 Peters, D. L., 92, 117 Peterson, B. L., 91, 118

Quandt, R. E., 153, 178

Presser, S., 39, 40, 56n, 59, 61, 63,

Pitts, F. R., 2, 34

Porter, L. W., 2, 33

65, 93, 94, 118

Raden, D., 43, 61, 65 Raftery, A. E., 163, 171, 178 Rao, C. R., 129, 146, 154, 154n, 155, Rao, V. R., 84, 115 Ray, R., 37n Read, E., 37n Reitz, K. P., 4, 35 Reskin, B. F., 124, 145 Rindskopf, D., 132, 146 Robinson, J., 227, 248 Rock, D. R., 146 Rodgers, W., 83n Rogers, E. M., 1, 34 Rogosa, D., 120n, 146 Romney, A. K., 45, 65 Roncek, D. W., 222, 223, 225, 226, 227, 228, 248 Rosen, H. S., 153, 178 Ross, S. M., 197n, 198n, 219 Rubin, D. B., 294, 318 Ryder, N. B., 42, 65

Sailer, L. D., 17, 31, 34 Sansone, J., 83n Saris, W. E., 88, 92, 97, 117, 380 Satorra, A., 251, 253, 253n, 254, 255, 256, 256n, 258, 262, 263, 267, 271, Satterthwaite, F. E., 259, 278 Sawyer, K. R., 172, 178 Schaefer, C., 64 Schaeffer, N. C., 42n, 53n, 60, 65 Schneider, E. J., 96, 117 Schoenberg, R. J., 125, 146, 250, 252, 253, 261, 264, 276, 278 Schoepfle, M., 40, 65 Schuessler, K. F., 90, 114 Schuman, H., 39, 40, 50n, 56n, 59, 61, 64, 65, 85n, 93, 94, 114, 118 Schwarz, N., 85, 115 Scott, D. W., 324, 380 Seidman, S. B., 29n, 34 Self, S. G., 380 Serfling, R. J., 129, 146 Shah, B. V., 338, 380 Shanks, J. M., 119 Shannon, C., 87, 118 Shapiro, A., 250, 255, 256, 262, 266, 277, 278

Sherif, C. W., 88, 118 Sherif, M., 88, 118 Sherry, S., 83n Shigemasu, K., 301, 320 Shirey, P. R., 28n, 32 Shiryayev, A., 326, 380 Siegel, P. M., 100, 118 Siegler, I. C., 322, 379 Silka, L., 42, 65 Silvey, S. D., 154, 154n, 155, 159, Sime, J., 44, 62 Singer, B. H., 338, 358, 364, 380 Skinner, C. J., 260, 278, 351, 380 Skvoretz, J., 1n Smith, A. F. M., 162, 178 Smith, D. A., 1, 34 Smith, T. M. F., 260, 278, 351, 380 Smith, T. W., 91, 94, 96, 118 Snyder, D., 1, 34 Sobel, M. E., 250, 252, 276 Sodeur, W., 4, 33 Soong, R., 239, 247 Sörbom, D., 104, 105, 116, 125, 145, 250, 251, 252, 254, 262, 277, 322, 330, 379 Sorenson, A., 379 Spilerman, S., 180, 219 Spradley, J. P., 40, 44, 65 Srinivasan, V., 289, 319 Stallard, E., 323, 380 Stark, R., 238, 247 Stenbeck, M., 39, 40, 63, 149, 177 Stephenson, C. B., 94, 96, 118 Stokes, D. E., 114, 145 Straf, M. L., 63, 115 Strauss, A., 41, 63, 65 Suchman, L., 40, 65 Suci, G. J., 84, 117 Sudman, S., 41, 44, 56n, 62, 65, 85, 115 Sugiyama, N., 301, 320 Sullivan, J. L., 120, 146 Sykes, W., 41, 64 Symonds, P. M., 89, 118

Taber, T. D., 90, 115 Takane, Y., 301, 320

Tanur, J. M., 63, 115

Tannenbaum, P. H., 84, 117

Terrell, G. R., 324, 380 Teuter, K., 230n, 247 Theil, H., 230, 248 Thomson, E., 42n, 53n, 65 Thornton, A., 63 Tisak, J., 251, 262, 277 Titterington, D. M., 162, 178 Tolley, H. D., 337, 341, 343, 380, 381 Tourangeau, R., 63, 86, 115, 118 Trivedi, P. K., 184, 188, 217n, 218 Trognon, A., 185, 218 Tuchfarber, A. J., 39, 62 Tucker, A. W., 338, 379 Tukey, J. W., 343, 379 Tuma, N. B., 180, 205, 220 Turner, C. F., 85, 118

van de Pol, F., 125*n*, 146, 317, 320 van der Heijden, P. G. M., 280, 281, 283, 289, 298, 300, 317, 318, 320 Verboon, P., 280, 318

Wallerstein, I., 34
Wang, C., 230n, 247
Weaver, W., 87, 118
Wedderburn, R. W. M., 157, 159, 178, 181, 185, 194n, 219, 220
Weisberg, H., 85, 97n, 118
Weller, S. C., 45, 65
Wellman, B., 8, 9, 34
Werner, O., 40, 65
Werts, C. E., 100, 103n, 118, 120, 121, 123, 128n, 135n, 140, 142, 146
West, E., 179
Westoff, C. F., 42, 65
White, D. R., 2, 3, 3n, 4, 5, 6, 6n, 8, 16, 17, 34, 35

White, H., 157, 168n, 178, 188, 201, 220, 252, 278 White, H. C., 20, 34, 35 Whittaker, J., 302, 320 Wiley, D. E., 100, 103, 104, 118, 120, 122, 125, 126, 127, 135, 135n, 143, 146 Wiley, J. A., 100, 103, 104, 118, 119, 119n, 120, 120n, 121, 122, 124, 125, 126, 127, 128, 128n, 129, 130, 135, 135n, 143, 144, 146 Wiley, M. G., 119, 119n, 120, 120n, 121, 124, 126, 127, 128, 128n, 129, 130, 144, 146 Willer, D., 1, 14, 34 Williams, R. A., 42, 65 Wilson, T. D., 41, 66 Winship, C., 4, 17, 35 Withey, S. B., 87, 90, 113 Woelfel, J., 83n, 87, 118 Wolfowitz, J., 379 Wolter, K. M., 260, 278 Woodbury, M. A., 322, 323, 337, 338, 347, 351, 355, 379, 380, 381 Wortman, C. B., 64

Yamagishi, T., 33 Young-DeMarco, L., 63 Yule, G. U., 190, 218 Yu Xie, 83n, 221n

Zadeh, L. A., 322, 381 Zaller, J., 92, 118 Zeger, S. L., 180n, 181, 197, 198n, 199, 200, 204, 219, 220 Zimowski, M., 120n, 146 Zisook, S., 379



SUBJECT INDEX

abstract equivalences, 4, 8 based on second-order moments. ACOVS program, 128n 265-67 agree-disagree questions illustration, 267-70 attitude measured by, 97 linear relations models for, 253-55 moment structure analysis, 255-59 correlated errors and, 121, 137normal theory-minimum distance algorithms analysis, 262-65, 267, 272-73 pseudo maximum likelihood (PML) expectation maximization. See expectation maximization algorithm approach, 262-63, 267, 272-73 minimum entropy, 329 sample moments asymptotic variance matrix, 259-60 Newton-Raphson, 155, 316, 338 attitude measurement reliability, 83ambivalence in questionnaire responses, 38, 50-52, 55, 57 118 methods to test, 94-105 ANOVA procedures, 107 Anselin's alternative 2SLS estimator. number of response categories for 236-48 optimal, 84-90, 91-94 APL program, 185, 316 single survey questions and, 90-91 Aptech Systems, 185, 191 autocorrelation of count data, 179, arbitration distribution theory, 104 183, 191-93 AR(1) process, 199-200, 212-13 generalized quasi-likelihood model artificial nesting, 152 use for, 181, 203-208 moment estimators of parameters asymptotic distribution-free (ADF) of, 204-205 covariance analysis methods, quasi-likelihood models and, 197-251 - 52asymptotic properties 98, 213-15 automorphic equivalence. See struc-GOL estimator, 181, 204 tural isomorphism non-nested tests, 156-57 automorphism, 12-13 two-stages least squares (2SLS) estimator, 223, 233-36 autoregressive models for trait asymptotic robust inferences in mean change, 124, 125, 141 and covariance structures, 249autoregressive processes first order (AR[1]), 199-200, 212asymptotically-optimal minimum distance, 260-61, 268 point processes, 193

band-diagonal matrix, 199n
Bayesian model-selection criteria. See
BIC statistic
BIC statistic, 163–64, 171–73
bipolar rating scales, 84
British mobility table. See Glass mobility test, comparison

categoric data and statistical estimation, 104–105
CDAS program, 163n
Chapman-Kolmogorov equations, 326
chi-square goodness-of-fit statistic, 252, 257–59, 263–64, 268, 271–72
classical test procedure, 165, 171–72
classical test theory, 101, 120
closed-form expressions, 125, 126, 128, 132

collinearity, 148 computer limitations on large matrices, 240

computer programs. See also names of specific programs covariance structure analysis, 262 latent budget analysis, 316–17 Newton-Raphson algorithm, 316, 338

Poisson regression, 185 sample size and, 225, 226n, 237 two-stage least squares, 231 congeneric measurement, 101 constrained latent budget model fixed-value and equality con-

straints, 296–300 multinomial logit parameter constraints, 300–15

contagion as source of autocorrelation, 192-93

as source of overdispersion, 187-88 contingency tables, analysis of BIC in, 171

non-nested models for. See nonnested hypothesis tests two-way tables. See constrained latent budget model

continuous variables, 324 correlated measurement errors (CE) model, 119-46 LISREL control statements for, 143 random error model compared to, 120–26 sample covariance matrices, 143–44 sensitivity of estimates, 126–35 correlations over-time, 121 count data analysis, 179–220 autocorrelation in, 191–93 Monte Carlo simulations for, 201–208 non-nested tests for, 156–62

non-nested tests for, 156–62 overdispersion in, 186–91 Poisson process and, 182–83 Poisson regression in, 183–86 quasi-likelihood estimation, 193– 201

COUNT program, 185, 191 covariance matrix attitude stability estimation by, 120 to estimate correlated errors models, 128 standard equations and, 322

covariance structure analysis. See asymptotic robust inferences in mean and covariance structures

degrees of freedom
exhaustion of, 148
latent budget analysis, 305
non-nested tests use of, 169–70
delta method, 129
direction of attitudes, 92–94, 110,
111–12
discrete response factor analysis, 322,

330-32, 345-46 "don't know" responses to standardized questions, 38, 39, 56, 59, 61, 112-13

ego networks, 6, 9, 14 empirical underindentification, 132– 33

endogenous variables in structural equations, 322, 354, 355

two-stage least squares application, 239

EQS program, 83, 106n, 251 asymptotic standard errors in, 252 restriction of means by, 256 Satorra-Bentler chi-square statistic in, 259

Euclidean distance measure, 227 event history analysis, 179–80 exogenous variables

in structural equations, 322, 354, 355, 359–60

two-stage least squares application, 239, 240-42

expectation maximization algorithm, 294, 316–17, 337, 347

experimental exchange networks, power in, 1, 23-7

factor analysis, 322, 329–32, 344–46 feeling thermometers, 85, 97 correlated errors and, 121, 138 fertility motivation questionnaire development, 41–82 interview process, 43–45 interview questions, 66–72 reducing task uncertainty of responses, 53–57 respondents, 45, 73 response analysis, 45–48 sample questions, 78–82 state uncertainty in responses, 48–

state uncertainty in responses, 48– 53, 57–60 filter questions, 39–40 first-order autoregressive (AR[1]) pro-

cess, 199-200, 212-13 first-order moments, 259

fuzzy classes, latent, 321, 322, 323, 363, 364, 378

fuzzy partition, 325, 326, 327

gamma Poisson distribution, 189 GAUSS program, 125, 185, 191, 200n generalized least squares ADF estimates, 83, 105, 106n, 107–109 generalized population potentials, 226–28

generalized quasi-likelihood (GQL) estimator, 197–200

Monte Carlo simulations, 201–208 general quasi-linear estimator, 216–17 General Social Survey, 83, 91, 94–96, 98–99, 106, 107, 113 Gibbs-Martin index, 239 Glass mobility test, comparison, 147, 148–49, 162–69 GLIM program, 163*n*, 174, 175–66,

185

GLS-ADF estimates. See generalized least squares ADF estimates grade-of-membership (GOM) model, 321-81

discrete response factor analysis compared, 330–32, 345–46 estimation for, 337–43

example, 362-78

latent class model compared, 332-37, 346-51

maximum likelihood factor analysis compared, 329–30, 344–5 parametric structure, 323–29 structural generalizations, 351–61

graph isomorphism, 10–13 graph-theoretic attribute, 5, 7

Hessian matrix, inverse, 201, 202 heterogeneity

individual, 321

as source of autocorrelation, 193 as source of overdispersion, 185-

as source of overdispersion, 185– 86, 188

heteroskedasticity, 190–91, 201, 202– 203

identifiability

grade-of-membership model, 338–41, 347–50

latent budget analysis, 292–94, 305 latent class model, 292, 347–50

information matrix, 154–55 information theory, 87–89, 111 intensity of attitudes, 38, 92–94, 109–

Interactive Matrix Language, 185 inverse Hessian matrix, 201, 202 isomorphism, 10–11

graph, 11-13

structural. See structural isomorphism

iteratively reweighted least squares procedure, 157

joint membership matrix, 328-29 just-identified model, 125, 126

Kolmogorov-Smirnov (K-S) tests, 205-206

Kuhn-Tucker constraints, 338

labor unions, founding of, 179, 208-15

lag-1 process, 102, 124, 125, 141 Lagrange multiplier/score tests, 149,

asymptotically optimal, 161-62 non-nested tests as, 154-56

Land-Deane/Anselin 2SLS estimator, 236-48

latent budget model, 279-320

description, 279-81

fixed-value and equality parameter constraints, 296–300

multinomial logit parameter constraints, 300–15 unconstrained, 281–96

latent class model

applied to Glass mobility table, 162–69

contingency table analysis by, 148-49

grade-of-membership model compared to, 322, 332-37, 346-51

latent budget model compared to, 288-89, 315

nonnested hypothesis tests for, 162 parameter estimates for, 157–58,

Poisson distribution for, 157 latent fuzzy classes, 321, 322, 323,

363, 364, 378 latent profile model, 332

latent variables, 253-55, 330-31

LAT program, 316 LCAG program, 316, 317

least squares method

iteratively reweighted, 157

ordinary least squares (OLS) models. See ordinary least squares (OLS) models

Poisson regression compared to, 185

two-stage least squares models. See two-stage least squares (2SLS) models for spatial-effects model unweighted least squares (ULS), 267

life satisfaction, measurement of, 112 likelihood functions. See also maximum likelihood (ML)

of multivariate models, 323, 337-51 likelihood ratio tests, 148-49, 154,

155, 161, 169

Likert-type scale, 84, 89 LIMDEP program, 185, 191

LINCS program, 125

asymptotic standard errors in, 252 linear models

quasi-likelihood estimation and, 196

spatial-effect models and, 221, 222 linear negative binomial

specification, 190–91

LISCOMP program

for covariance structure analysis, 251, 256

maximum likelihood estimation by, 83, 105

polychoric correlations of, 107n, 108

product-moment correlation, 109 structural equation model, 354

LISREL program
control statements for estimating

CE model, 143 for covariance structure analysis, 256, 262

maximum likelihood estimation by, 83, 101, 105, 106n, 125, 128n normal theory standard errors for ULS estimates, 267

polychoric correlations analyzed by, 107

product-moment correlation, 109 structural equation model, 321,

344, 354, 358, 360, 361, 364, 368, 375

vector of means and covariances in, 251

local independence assumption, 325 loglinear association model, 149, 158,

applied to Glass mobility table, 162-69

loglinear crossings model, 149, 169

applied to Glass mobility table, 162-69

loglinear models. See also loglinear association model; loglinear crossings model

contingency table analysis by, 148, 169

latent class/budget models as, 289 Poisson distribution in, 157

loglinear specification for Poisson regression, 184

log quasi-likelihood function, 194-95

Markovian (lag-1) process, 102, 124 Markov latent class models, 317 matrices

covariance. See covariance matrix cross-products, 232 information, 154–55 large, 225–26, 240

sample moments asymptotic variance, 259-60

matrix languages, 185

maximum likelihood (ML) estimation asymptotic normality of, 157 factor analysis, 322, 329–30, 344–45 latent budget analysis, 305–307 negative binomial regressions, 208, 210–11

Newton-Raphson method of, 155 non-nested hypothesis tests and, 159

Poisson regression models, 185, 208, 210-11

programs for, 125

quasi-likelihood estimation, 193– 94, 196–97, 200

sample size limitations, 226 spatial-effects model, 222, 224–26,

242-44 theory, 104

unconstrained latent budget model, 294–95

mean structure analysis. See asymptotic robust inferences in mean and covariance structures

measurement error, 119, 120. See also correlated measurement errors (CE) model; random measurement errors (RE) model MIMIC model of latent budget model, 290, 291-92, 315

minimum distance (MD) analysis, 250 inferential statistics in, 251 robust standard errors of estimates in, 252

minimum entropy algorithm, 329 minimum entropy estimators, 327-29 missing information principle, 338 mixture models, 162, 290-91, 315 MLLSA program, 163n, 316 ML (maximum likelihood) estima-

ML (maximum likelihood) estimation. See maximum likelihood (ML) estimation

mobility tables

Glass, 148-49, 162-69 square, 279, 280

mobility test Glass, 147

moment structure analysis, 255-59

Monte Carlo simulations asymptotic distribution-free (ADF) covariance analysis methods, 252

for count data analysis, 179, 181, 191, 201–208

for normal theory-minimum distance analysis, 268–70

ordinary least squares application, 230n moving-average point processes, 193

multinomial logit constraints on latent budget model parameters, 279, 300–15, 317

multivariate regression analysis, grade-of-membership model for. See grade-of-membership (GOM) model

National Election Study, 83, 95–97, 98–99, 102*n*, 106–108, 109–11, 113, 127

National Institute on Aging, 321n National Long Term Care Surveys (1982, 1984), 321, 322, 362, 378

negative autocorrelation, 213 negative binomial regression

for count data analysis, 179, 181–82, 186

empirical application of, 208-11 Monte Carlo simulations, 201-208 overdispersion and, 189-91, 214-15

nested hypothesis tests, 147-49, 165. See also non-nested hypothesis tests

network analysis, positional approach to, 3-4

network-effects model. See spatialeffects model

networks, experimental exchange, 1, 23-27

neutrality in questionnaire responses, 49, 54-55, 56-57 attitude measurement reliability

and, 84–85, 93 NEWTON program, 316, 317 Newton-Raphson algorithm, 155, 316,

338 nonlinear regression and non-nested hypothesis tests, 159-60

non-nested hypothesis tests, 147–78 applied to Glass mobility table, 162–69

comparison, 147-49

for count data, 156–62 other model-selection methods and, 169–73

performance of, 174–77 regression models, 149–53 as score tests, 154–56

non-nested models for quasilikelihood estimation, 211–12

normal theory-minimum distance analysis, 250, 262–65, 267, 268, 272–73

inferential statistics in, 251 robust standard errors of estimates in, 252

Numerical Algorithms Group, 185

ordinary least squares (OLS) models, 222, 228-30, 242, 244 overdispersion, 179, 183

count data estimators and, 203 deviations from Poisson process causing, 186–89

negative binomial model and, 189– 91, 211

Poisson model and, 211

quasi-likelihood models and, 213, 214-15 test for, 217-18

panel data, single-indicator multiwave models of. See correlated measurement errors (CE) model

panel surveys, 94–97, 100 PANMARK program, 317

parameter estimation consistency of, 251

for correlated errors models, 128, 133-34

for count data estimators, 201 factor analysis, 344–46 grade-of-membership model, 323,

337-43 latent class model, 346-51 negative binomial model, 190-91 non-nested tests, 154-55, 161-62 Poisson regression, 184

quasi-likelihood estimation, 194 parameters, dependency of, 343

parameters of latent budget models, 280, 281

fixed value and equality constraints on, 296-300 multinomial logit constraints, 300-

party loyalty, measurement of, 109-11, 138-39

point processes, 183, 193
Poisson process, 182–83, 186–89
Poisson regression, 180–66
computer packages for, 185
empirical application of, 208–11
Monte Carlo simulations, 201–208
non-nested hypothesis tests and,
157, 160, 167, 179

polychoric correlations, 104–105, 107, 108

population potentials, 226–28 PRELIS program, 106n, 107n, 108,

programs, computer. See computer programs

pseudo maximum likelihood (PML) analysis, 250, 262-33, 267, 272-73 inferential statistics in, 251 robust goodness-of-fit statistic in, 268

robust standard errors of estimates in, 252, 268

quadratic negative binomial specification, 190-91

quasi-likelihood (QL) estimation for count data analysis, 179, 181–82, 193–97. See also generalized quasi-likelihood (GQL) estimator

auto-correlation and, 197–98 empirical application of, 208–10, 211–15

Monte Carlo simulations, 201-208 simplified procedure for, 199-200

questionnaires, standardized questions for. See standardized questions

random measurement errors (RE) model, 119, 120

application of, 139-43

correlated errors model compared to, 120-26, 127, 134-35, 136-37 standard errors in, 130

Rasch models, 149

rating-scale biases, 91-92, 112

rating scales. See response categories recursive equations, correlated errors model defined by, 125–26

regression estimators and spatialeffect models. See spatial-effects model

reinterview surveys, 94-97, 100

reliability of measurement of attitudes. See attitude measurement reliability

defined, 89, 101

number of response categories and,

number of scale points and, 89–90 of single survey questions, 90–91 unfolding techniques and, 109–11 respondents

burden of multiple response categories on, 91

stability of, 120

response categories

direction and intensity in, 92-94 discrete nature of, 101-102

"don't know." See "don't know" responses to standardized questions number of, 84–90, 91–92, 111–13 reliability of, 89–92

single survey questions and, 90-91 response sets, 91-92, 112

response sets, 91–92, 112 restricted latent class model, 162–69

robustness, 251. See also asymptotic robust inferences in mean and covariance structures

role systems theory and position, 1, 17-23

samples

comparing reliabilities of, 94–97 sampling error. See standard errors SAS program, 225, 237, 244, 338 Satorra-Bentler chi-square statistic, 259

School and College Ability Test, 121n score functions

grade-of-membership model, 338 quasi-score function, 195

score tests. See Lagrange multiplier/ score tests

second-order moments, 256, 259 asymptotic robustness of inferences based on, 265–67

seemingly unrelated regression (SUR) model, 255, 267-70

semistructured interview analysis of responses, 45-47

for questionnaire development, 41, 43–45, 60

questions for, 66-72

quotations from respondents, 74–78 respondents for, 73

uncertainty responses in, 48-53

SEU model of fertility motivation, 42-43, 61

simplex models, 102–103, 142, 378 simultaneous latent class analysis, 310–12, 314–15, 317

single-indicator multiwave models. See correlated measurement errors (CE) model

software. See computer programs

spatial-disturbances model, 224 spatial-effects coefficient, 224-25 spatial-effects model, 221-48 inconsistency of ordinary least squares estimation for, 228-30 maximum likelihood estimation, 224-26 population-potential variables, 226-28 specification, 223-24 two-stage least squares estimator. See two-stage least squares (2SLS) models for spatial effects model SPSS program, 225 stability measurement, 120, 122-24. 127 standard errors asymptotic, 129, 263-64 calculated from inverse Hessian matrix, 201, 202 for correlated errors models, 119, for count data estimators, 201-203, 206-208 in Poisson regression, 185 for random error models, 131-32

in Poisson regression, 185 for random error models, 131–32 robust, 268, 272 standardized questions attitude measurement by. See attitude measurement reliability development process for, 40–41 non-random errors caused by format of, 137–39 semistructured interview for devel-

opment of. See semistructured interview on subjective phenomena, 38–39 state uncertainty, 37–39, 40, 41 recording in interviews, 53–57

spontaneous expressions of, 48–53 in standardized interviews, 57–60 state variable changes, grade-of-

membership model of, 359–60 structural equation systems, 351–54. See also asymptotic robust inferences in mean and covariance structures

grade-of-membership model, 322, 355-58, 360-61, 375-77

structural equivalence, 3-4 analysis of social homogeneity by, 28 - 31comparison to structural isomorphism, 13-16, 18-23 position as, 5-10 structural power analysis and, 25structural isomorphism, 4, 13, 18-23 analysis of social homogeneity by, 29 - 31position as, 10-17 structural power analysis and, 24subjective expected utility (SEU) model of fertility motivation, 42-43, 61 subjective phenomena reliability of measurement of, 111,

subjective phenomena reliability of measurement of, 111, 112 standardized questions on, 38–39, 61 survey instruments continuous responses, 324

continuous responses, 324 error variance of items, 119 standardized questions for. See standardized questions survey interviews

attitude measurement in. See attitude measurement reliability

tape recording of interviews, 60
task uncertainty, 37–39, 40, 41
reduction through recording techniques, 53–57, 61
Taylor series expansion, 155
tetrachoric correlations, 104–105, 107, 108
time dependence

as source of autocorrelation, 192 as source of overdispersion, 185–87 time-series data, 180, 183, 193 trait stability measurement. See stabil-

trait stability measurement. See stability measurement

true-score theory, 101, 120 correlated errors model and, 132 reliability as true-score variance, 127n

two-stage least squares (2SLS) models

- for spatial-effects model, 221-23, 230-32
- asymptotic variance of, 233-36 comparison with Anselin's models,
- 236–38 conclusion, 244–46
- empirical application/comparison of, 238-44
- two-way contingency tables
- constrained latent budget analysis for. See constrained latent budget model
 - row and column variables in, 279-
- unconstrained latent budget model, 281-83
- comparison with latent class analy
 - sis, 288–99 example of, 283–87
 - graphical representations of, 289–
 - identification of, 292-94
 - maximum likelihood estimation, 294–95

- unconstrained negative binomial specification, 191
- underdispersion, 192n
- unfolding techniques and reliability, 109-11
- unweighted least squares (ULS) analysis, 267
- variables
 - continuous, 324
 - endogenous. See endogenous variables
 - exogenous. See exogenous variables global, 8
 - grade-of-membership model of
 - state variable changes, 359-60 latent, 253-55, 330-31
 - population-potential, 226-8
- verbal-ability data, analysis of, 121,
- verbal labeling, 92, 112-13
- Wald statistic, 155, 156
- world-system theory, 1